

R E M A R K S

In view of the Examiner's comments:

- a. Claims 5-7, 10-20 and 22 have been canceled; and
- b. Claims 1-4, 8-9 and 21 have been amended to more particularly define Applicant's invention and to more clearly distinguish it from the cited references.

As Applicant's Specification sets out beginning at Page 11, the present invention is directed to an exhaust system of an automotive vehicle in which the conventionally employed muffler is eliminated. In particular, testing showed that as the engine built rpm, the gas flow into the chambers of a muffler created a turbulence in pressure which made it harder for the exhaust gases to come out of the engine. Increased gas mileage, increased horsepower and torque, lower engine temperatures are all achievable with the invention, however, by eliminating the muffler and redesigning the flow directing pipe segments to themselves serve as the "muffler" for the exhaust. That is, even though the teachings of Applicant's Patent No. 5,144,799 and/or Patent No. 5,199,258 be followed, without the present invention, the existence of a muffler itself still gives rise to a problem. Noting that the cited Bainbridge reference continues to show and utilize a muffler in the exhaust path (22), the redesign of the present Application eliminates the muffler entirely by directly coupling the exhaust pipe to the output of the collector pipe (where the muffler is conventionally coupled in-between the two) and by providing a series of apertures along substantially the entire lengths of header pipe segments, and/or along substantially the entire lengths of exhaust pipe segments -- and, then by enclosing the individually apertured pipe segments within a surrounding segmented pipe or shield. As the Specification makes clear at Page 12, "pipe segments within pipe segments" result when the surrounding shield is similarly cut and angled so as to enclose the individual header and/or exhaust pipe segments.

As the Specification sets out at Page 13, the "pipe-within-a-pipe" construction could be utilized either for just the exhaust pipe segments of the automotive vehicle, for just the header pipe

segments from the engine to the input end of the collector pipe, or for both (which provides the optimum performance).

It is respectfully submitted that neither of Applicant's above noted Patents suggest the "back pressure" problems associated with the muffler of an automotive vehicle, nor does the cited Bainbridge Patent -- which continues to utilize a muffler in its exhaust system. With Applicant's invention as now defined, the output of the collector pipe connects directly into the exhaust pipe segments without any intervening muffler, and with the surround pipe being composed of like segments of preselected length cut at their ends at preselected angles for traversing the component parts of the vehicle without any bending as would create turbulence or back pressure. The cited Richardson Patent adds nothing to this, as all it discloses is a design for a muffler having a uniquely designed conduit 20, at the end of which a portion includes a plurality of perforations or openings. (As shown in FIGURE 5 of Applicant's Drawings, and as called out in the amended Claims, Applicant's apertures are spaced apart substantially along the entire length of their respective pipe segments.)

Claims 1-4, 8-9 and 21 have been amended to more clearly define Applicant's construction which supplants any need for including a muffler in the exhaust system of an automotive vehicle. Instead, the combination's exhaust pipe directly couples to the output of the specified collector pipe, rather than through any muffler as typified in the prior art. The Bainbridge reference shows a muffler in its exhaust system -- which may or may not be of the type shown by Richardson. The cited Barth reference continues to show a muffler inclusion even while header pipe segments and exhaust pipe segments are shown cut at various lengths and at various angles. None of the references, however, discloses or suggests that an exhaust system can be developed without any muffler whatsoever, as is set out in Applicant's Specification and now more clearly called out by the amended Claims. And, clearly, none of the references show a surrounding shield about the individual exhaust and header pipe segments, much less the showing of apertures in the individual segments along substantially their entire lengths.


This Application is now considered to be in condition for allowance, which action is respectfully submitted.

Respectfully submitted,

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